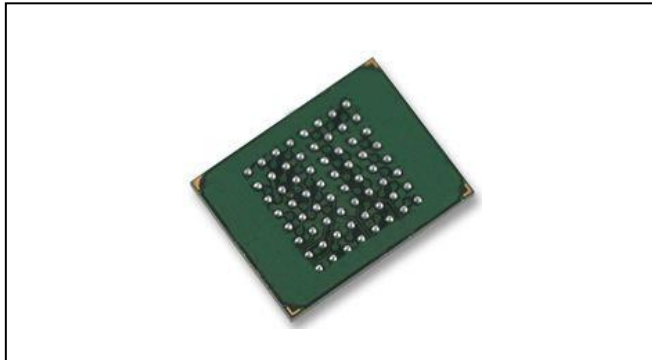


Flash Memory MODULE

512Mbit Nor Flash organized as 32Mx16, based on 16Mx16

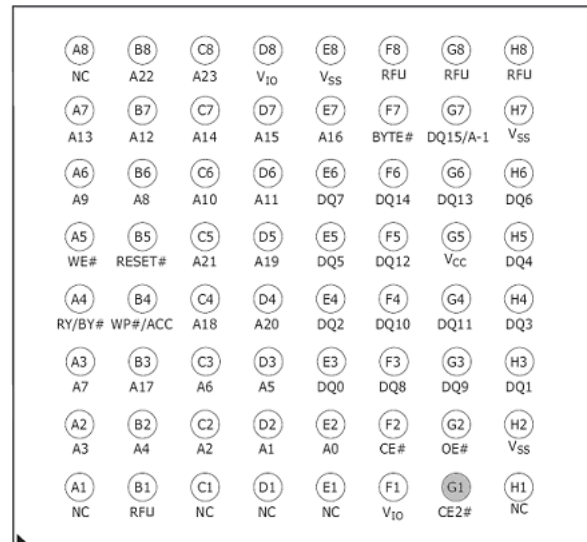


Features

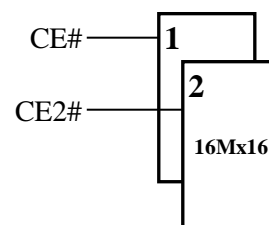
- Single 3V read/program/erase (2.7V-3.6V)
- $V_{IO} = V_{CC} = 2.7$ to 3.6V
- 8-word/16-byte page read buffer
- 32-word/64-byte write buffer reduces overall programming time for multiple-word updates
- Uniform 64 Kword/128 Kbyte sector architecture
- Suspend and Resume commands for Program and Erase Operations
- Support for Common Flash Interface (CFI)
- Persistent and Password methods of Sector Protection
- Highest address sector protected
- WP#/ACC input for accelerated programming time
- Maximum read access times with $V_{CC}=3.0$ -3.6V
 - Random Access Time: 100 ns
 - Page Access Time: 25 ns
 - CE# Access Time: 100 ns
 - OE# Access Time: 25 ns
- 100,000 erase cycles per sector typical
- 20-year data retention typical
- Available Temperature Range:
 - 0°C to 70°C
 - 40°C to +85°C
 - 55°C to +125°C

Pin Assignment (Top View)

BGA 64



Block Diagram



All other signals are common to all memories

General Description

The 3DFO512M16VB2359 is a 3.0V single power 1Gbit Flash memory organized as 32.054.432 words or 64.108.864 bytes. The device has a 16-bit wide data bus that can also be configured as an 8-bit wide data bus by using the BYTE# input. It is organized in **2 banks with separate chip enable (CE#)** controls. It requires only a **single 3.0 volt power supply** for both read and write functions.

In addition to VCC input, a high-voltage **accelerated program (WP#/ACC)** input provides accelerated programming time and protects first or last sector regardless of sector protection settings. The **Ready/Busy (RY/BY#)** is a dedicated open drain output pin that detects program or erase cycle completion. The **Vio pin** allows the host system to set the voltage levels that the device generates and tolerates on all inputs and outputs.

Hardware data protection measures include a low Vcc detector that automatically inhibits write operations during power transitions. Persistent Sector Protection provides in-system, command-enable protection of any combination of sectors. Password Sector Protection prevents unauthorized write and erase operations in any combination of sectors through a user-defined 64-bit password.

The 3DFO512M16VB2359 is packaged in a small 64 balls BGA and is available in commercial, Industrial or Extended temperature range.

FLASH Memory Module

3DFO512M16VB2359

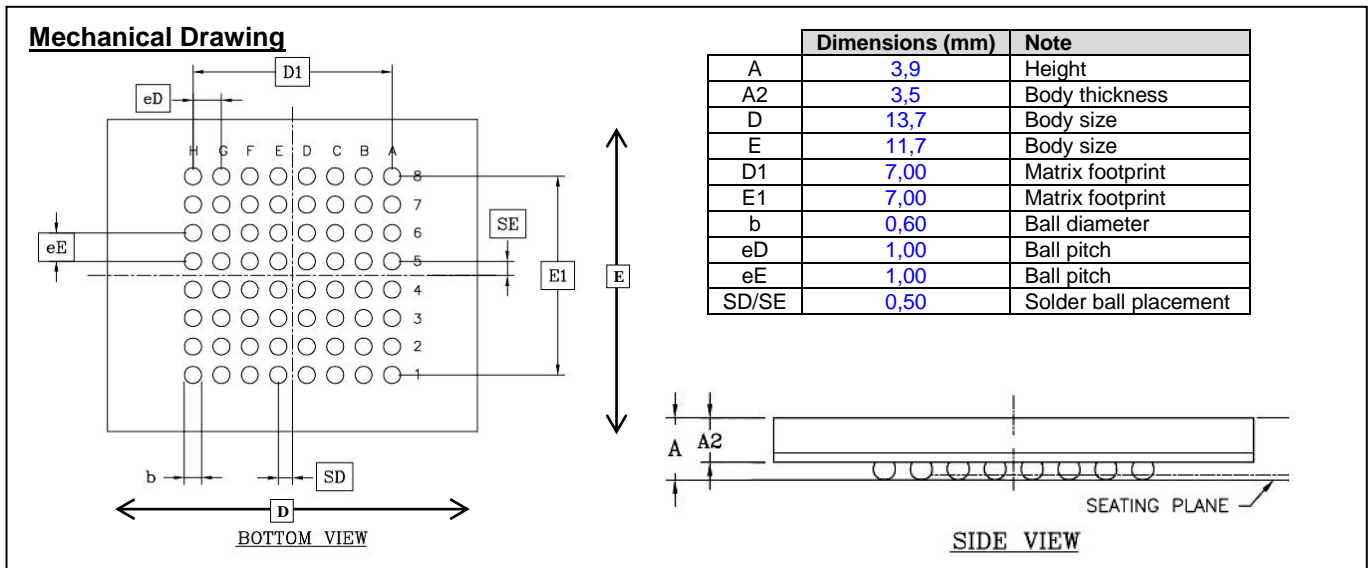
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Flash Memory MODULE

3DFO512M16VB2359

512Mbit Nor Flash organized as 32Mx16, based on 16Mx16



OPERATING RANGES

Parameter	Symbol	Min	Max	Unit
Vcc supply voltages	V _{cc}	+2,7	+3,6	V
Vio supply voltage	V _{io}	+2,7	+3,6	V
Com. Temp. Range	C	0	70	°C
Ind. Temp. Range	I	-40	+85	°C
Ext. Temp. Range	S	-55	+125	°C

ABSOLUTE MAXIMUM RATINGS PER DEVICE

Parameter	Symbol	Min	Max	Unit
Voltage with respect to ground	V _{io} , V _{cc}	-0,5	+4,0	V
	A9 and ACC	-0,5	+12,5	V
Storage temperature	T _{STG}	-65	+150	°C
Short circuit output current I/Os		-	200	mA

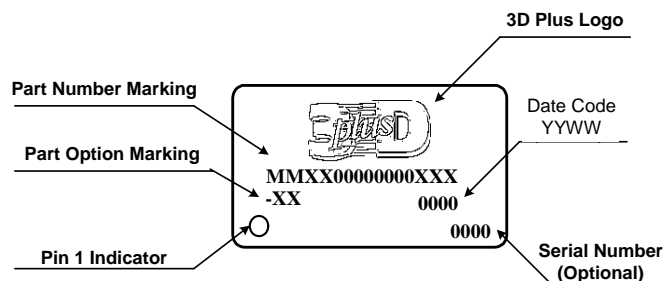
DC CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit
Active Read Current @ f=1Mhz	I _{cc1}		6	20	mA
Active Read Current @ f=10Mhz	I _{cc1}		60	110	mA
Standby current	I _{cc4}		2	10	µA
Input Low Voltage	V _{IL}	-0,1	-	0,3xV _{io}	V
Input High Voltage	V _{IH}	0,7xV _{io}	-	V _{io} +0,3	V
Output Low Voltage	V _{OL}	-	-	0,15xV _{io}	V
Output High Voltage	V _{OH}	0,85xV _{io}	-	-	V

Module Marking

3DFO512M16VB2359 - XX

Temperature Range
 CN = 0°C ~ +70°C
 IB = -40°C ~ +85°C
 MB = -55°C ~ +125°C



Main Sales Office

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FLASH Memory Module

3DFO512M16VB2359

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